

SHA Environmental Guide for Access & District Permit Applicants

MARYLAND STATE HIGHWAY ADMINISTRATION



Chapter 1 - Overview

1.0 Overview & Purpose.

The 'Environmental Guide' was developed by the SHA Office of Environmental Design as a supplement to the Maryland State Highway Access Manual. It is intended to assist those who submit applications and plans for an Access Permit or a District Permit.

The 'Environmental Guide' reflects current environmental policy and landscape design standards of SHA, and is offered as a tool to assist the development of acceptable plans for construction in the SHA right of way. However, while OED provides recommendations, the SHA Access Management Division is ultimately responsible for approval of requirements for an Access Permit, and the pertinent District office is responsible for approval of a District Permit.

Important Note: Numerous OED staff are involved with the review of materials submitted for Access Permits and District Permits. However, no staff of OED are authorized to make assurances or negotiate on behalf of OED, or on behalf of the Access Management Division or the District office. While communication between permit applicants and OED staff is encouraged to clarify SHA design standards and help resolve issues of concern, OED staff may only provide informal guidance.

1.1 Requirements for Access Permits and District Permits.

SHA issues several types of permits to allow access to a state highway, or for other work in the state right-of-way. Permits may be issued by either the Access Management Division or the pertinent District office, depending on the type of permit.

Access Permit. Certain commercial, industrial, or subdivision construction activities require an Access Permit issued by the Access management Division (AMD). Prospective applicants should contact the appropriate AMD Area Engineer with any questions regarding the permitting process.

Activities that require an SHA Access Permit:

- Entrances for commercial or industrial site access, either new or modified.
- Public or private street connections for subdivision access, either new or modified.
- Off-site State Highway improvements by developers, where mandated by the local jurisdiction in connection with development approval or required by SHA.
- Local government road improvement projects on state right-of-way, when related to conditions of land use or development approval, or a new highway intersection.
- Highway rehabilitation or streetscape improvements that involve work in the travel lanes of the state highway.
- Temporary construction access for the above.

District Permit. Except when required in connection with an Access Permit, certain other projects and activities within the state right-of-way require a permit issued by the pertinent District office. Note: All proposed utility work must be coordinated with and be permitted through the District office, independent of the Access Permit.

Prospective applicants should coordinate with the District Office staff for further information on the process and requirements for obtaining District permits.

Activities that require an SHA District Permit:

- Highway rehabilitation or streetscape improvements by local government.
- Construction, repair, replacement of sidewalks, pedestrian facilities, or bus shelters.
- Repair or replacement of entrances, curb and gutter, or pavement.
- Construction or modification of residential driveways.
- Construction or modification of drainage connections.
- Grading, landscaping, utility work, or sign placement.
- Any other work on the state highway, or within the state right-of-way, easement areas, land holdings, etc.

1.2 Structure of Environmental Guide. The ‘Environmental Guide’ is divided into the following chapters:

- **Chapter 1 - Overview** describes requirements for Access Permits and District Permits, explains the structure and topics of the ‘Environmental Guide’, and describes the SHA Landscape Design Philosophy.
- **Chapter 2 - Guidance Documents** describes environmental and landscape design documents used by SHA and permit applicants.
- **Chapter 3 - Office of Environmental Design (OED)** explains the involvement of OED, explains the roles of OED Divisions, provides contact information for key staff, and explains the process that OED follows for permit reviews.
- **Chapter 4 - Permits & Mitigation** provides information about environmental permits and required mitigation for the removal of trees and other losses caused by construction activities under an Access Permit or a District Permit.
- **Chapter 5 - Special Landscape Concerns** briefly explains SHA requirements that affect landscape design and construction activities as they relate to an Access Permit or a District Permit application.
- **Chapter 6 - Landscape Plans** explains requirements for the preparation of landscape plans and the elements that must be included in landscape plans.
- **Chapter 7 - SHA Landscape Notes** explains the required conditions, and provides the text that shall be reproduced on plans as SHA Landscape Notes.
- **Chapter 8 - Landscape Checklist** is completed during the coordinated response of OED for a permit application review. Applicants are encouraged to use this checklist to ensure that important concerns are not overlooked.

1.3 Topics. Below is a select list of topics and chapters in the ‘Environmental Guide’:

Landscape Design Philosophy	1.4
SHA Standard Specifications	2.1
Landscape Design Guide (LDG)	2.2
Preferred Plant List (PPL)	2.3
Landscape Cost Estimating	2.5
Scenic Byways and Recreational Trails	2.6, 5.1
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Divisions of Office of Environmental Design	3.1
Staff of OED & Permit Review Process	3.2
Roadside Tree Permit (RTP)	4.1, 7.14
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Tree Preservation Areas & Pruning Standards	5.3
Clearance for Aesthetics or Visibility	5.4
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SHA Landscape Notes & Title	7.0, 7.1
Required SHA Landscape Notes	7.2 - 7.24
Quick Guide to SHA Landscape Notes	7.25
Quality Assurance Checklist	8.0

1.4 SHA Landscape Design Philosophy. Landscape construction related to an Access Permit or a District Permit must meet the same standards for design and materials used elsewhere in the highway system. Since landscaping is an integral component of the highway and our environment, the plans submitted for a permit must provide durable roadside landscaping that thrives in difficult situations with little need for maintenance or replacement.

The landscape plans for an Access Permit or District Permit must be:

- **Context Sensitive**, to harmonize with the natural, cultural, and built features it adjoins and passes through. Context sensitive designs fit the ‘sense of place’ while ensuring the safety of highway users and maintenance staff.
- **Environmentally Appropriate**, to comply with legal requirements and meet stewardship goals of the SHA Business Plan. Environmentally appropriate designs limit impermeable surfaces, promote native species and naturalized elements, and include permits and approvals needed for construction.
- **Cost Effective**, to minimize funding requirements for installation and future maintenance. Cost effective designs fit within budget constraints while maximizing design impact.
- **Sustainable**, to implement design and management strategies. Sustainable designs use an asset -based approach that supports project goals and objectives, while promoting successful roadside vegetation establishment.

The SHA Landscape Design Philosophy is a central focus of the SHA Office of Environmental Design, as expressed in the ‘SHA Landscape Design Guide’ and its related documents. It is part of our vision for roadside landscape design, and thus an important part of the permit review process.

Chapter 2 - Guidance Documents

2.0 Environmental Guidance Documents. The following documents are available for download and use by applicants. Copies of these and other documents may also be obtained by email from staff of the Office of Environmental Design.

2.1 ‘SHA Standard Specifications for Construction and Materials’, also called the ‘Standard Specifications’ defines construction materials and methods that are required for construction within the SHA right of way.

The ‘Standard Specifications’ includes requirements for soils, seed, fertilizer, and plant materials as well as the standards for acceptance of permanent vegetation establishment. For ease of use, sections of the ‘Standard Specifications’ are referred to by their section number, e.g. Section 705.

All of these standards apply to construction under an Access Permit or a District Permit. Unless other specifications are approved, all landscape materials and methods used for construction are expected to conform to the ‘Standard Specifications’ for Sections 701 through 716 and 920.

To emphasize the importance of using approved materials and construction methods, landscape plans developed for permitted construction shall include certain notes that reference the ‘Standard Specifications’. These notes are discussed in Chapter 7.

Download at: <http://www.roads.maryland.gov/Index.aspx?PageId=44>

2.2 ‘SHA Landscape Design Guide’. The ‘SHA Landscape Design Guide’ explains the SHA landscape design philosophy and expectations for sustainable roadside landscaping . Topics include:

- Information about Scenic Byways, the Maryland Roadside Tree Law, Maryland Reforestation Law, and Chesapeake Bay Critical Area.
- Offset distances to guardrails and to fixed objects such as trees and other vegetation at various highway speeds, and offset distances to trees and shrubs to overhead and underground utilities.
- Guidelines for matching vegetation to soil placement, and for coordinating vegetation, soil stabilization matting and soil placement.
- Guidelines for reforestation design, and appropriate installation sizes of trees and other plant materials.
- Explanation of plant material use groups of the SHA Preferred Plant List.

Download at: <http://www.roads.maryland.gov/index.aspx?PageId=25>

2.3 ‘SHA Preferred Plant List’. This document provides a list of acceptable species and cultivars of trees, shrubs and other plant materials for highway installation.

Although other species and cultivars may be permitted, it is expected that landscape plans developed for an Access permit or a District Permit rely primarily on the species and cultivars of the ‘SHA Preferred Plant List’. The Preferred Plant List indicates:

- Accepted common and scientific names of plants and their cultivars.
- Plants for reforestation, natural areas, and stormwater management areas.
- Expected mature sizes of trees and shrubs (small, medium, large).
- Species and cultivars appropriate for streetscapes and near airports.
- Species not installed in SHA property because of invasiveness, including those in the ‘Do Not Plant List’ of the Maryland Dept. of Natural Resources.

Download at: <http://www.roads.maryland.gov/index.aspx?PagelId=25>

2.4 ‘SHA Highway Book of Standards for Highway and Incidental Structures, Category 7, Landscaping.’ These standards drawings are required for the installation of trees, shrubs and planting beds as specified in Section 710 of the SHA Standard Specifications. Download at:

<http://apps.roads.maryland.gov/BusinessWithSHA/bizStdsSpecs/desManualStdPub/publicationsonline/ohd/bookstd/toccat7.asp>

2.5 ‘SHA Highway Construction Cost Estimating Manual for Landscaping’. (‘Landscape Estimating Manual’). This document provides extensive design guidance for the landscape materials required by the ‘Standard Specifications’, particularly such items as subsoil, topsoil, turfgrass, meadow, the various types of soil stabilization matting, and most related materials.

Download at <http://www.roads.maryland.gov/index.aspx?PagelId=25>

2.6 ‘SHA Environmental Guidelines for Construction’ provides background information and guidelines for a wide range of environmental topics. Many subjects that are briefly discussed in the ‘Environmental Guide’ are explained in greater detail in the ‘Environmental Guidelines for Construction’. Download at:

http://roads.maryland.gov/training/erosion_and_sediment/recertification/documents/sha%20environmental%20guidelines%20for%20construction%20activities.pdf

- 2.7 ‘Context Sensitive Solutions for Work on Maryland Byways’.** This document explains key principles and provides examples of context sensitive design along Scenic Byway corridors and their designated one-mile viewsheds. It also provides information about related sensitive locations such as historic places and districts, as well as recreation, conservation, and preservation areas.

Download at: <http://roads.maryland.gov/oed/css-3.pdf>

- 2.8 SHA Pedestrian and Bicycle Design Guidelines.** This manual provides guidelines for preferred accommodations to benefit bicycling and walking as part of roadway projects when feasible.

Download at: http://roads.maryland.gov/ohd2/bike_policy_and_design_guide.pdf

- 2.9 FHWA Recreational Trails.** Several publications for planning and building recreational trails are available at the FHWA Recreational Trails Program website that focus on accessibility, safety, and good environmental practices.

Go to: http://www.fhwa.dot.gov/environment/recreational_trails/guidance

Chapter 3 - Office of Environmental Design

- 3.0 Involvement of Office of Environmental Design (OED).** In concert with other SHA Offices, OED participates in the SHA-wide review of materials submitted for an Access Permit or a District Permit.

OED typically participates in these reviews when construction is proposed within the right of way of SHA or in other property owned by SHA when any of the following concerns are involved:

- Construction is proposed along a designated Scenic Byway, a Recreational Trail, or a Segment of the Maryland Trail System.
- Construction will remove, impact or install trees or shrubs in SHA property.
- Construction will impact SHA property in the Chesapeake Bay Critical Area.
- Construction will impact sensitive environmental areas or SHA mitigation facilities for wetlands, TMDL, or stormwater management.
- Construction will impact landscaped areas maintained by OED.
- Construction will disturb areas of 5,000 square feet or more.
- When other areas of interest or responsibility of OED make review desirable.

3.1 Structure of Office of Environmental Design. Four Divisions of OED provide assistance with the evaluation of Access Permit and District Permit applications.

- **Environmental Programs Division (EPD)** reviews permit application materials for impacts to SHA wetland and stream mitigation sites as part of the coordinated response of OED during a permit application review. The Quality Assurance (QA) Team of EPD also may be involved during construction to ensure compliance with Erosion and Sediment Control Plans.
- **Landscape Architecture Division (LAD)** reviews proposed landscape designs to ensure compliance with the 'SHA Landscape Design Guide', for the protection of Scenic Byways and Recreational Trails, and for mitigation of impacts to Critical Areas as part of the coordinated response of OED during a permit application review.
- **Landscape Operations Division (LOD)** reviews proposed tree impacts and mitigation to ensure compliance with Maryland tree law and forest laws as part of the coordinated response of OED during a permit application review. LOD may also assist with landscape materials inspection during construction to ensure compliance with the 'Standard Specifications'.
- **Total Maximum Daily Load Team (TMDL)** reviews proposed impacts to tree plantings and stormwater management facilities including biotrenches, bioswales and similar infiltration and stormwater management facilities. The TMDL Team determines mitigation requirements and ensures compliance with Maryland's Watershed Implementation Program, as mandated by the Chesapeake Bay TMDL. TMDL compliance and mitigation is part of the coordinated response of OED during a permit application review.

3.2 Staff of Office of Environmental Design. Although OED provides formal recommendations only to the Access Management Division or to the District office at the conclusion of a permit review, staff of OED may be contacted directly by permit applicants to address questions or concerns regarding SHA environmental policy and design guidelines.

Important Note: Numerous OED staff are involved with the review of materials submitted for Access Permits and District Permits. However, no OED staff are authorized to make assurances or negotiate on behalf of OED or on behalf of the Access Management Division or the District office. While communication between permit applicants and OED staff is encouraged to answer questions and resolve issues of concern, OED staff may only provide informal guidance.

Key OED staff involved with the review of permit application materials, or during construction under an Access Permit or a District Permit:

Environmental Programs Division (EPD)		
Permit Materials Review		
Dist. 1, 2, 4, 7 Environmental Programs Team Leader	410-545-8632	Mark Smith
Dist. 3 Environmental Programs Team Leader	410-545-8617	Mark Duvall
Dist. 5, 6 Environmental Programs Team Leader	410-545-8643	Nora Bucke
Wetlands and Stream Mitigation Team Leader	410-545-8582	Bill Buettner
Quality Assurance for E&S Controls During Construction		
Quality Assurance Team Manager, Statewide	410-440-8473	Don Hoey
Quality Assurance Team Coordinator, Statewide	410-365-0164	Tad Daniel

Landscape Architecture Division (LAD)		
Permit Materials Review		
Scenic Byways & Recreational Trails Program Team Leader	410-545-8637	Terry Maxwell
Critical Area Mitigation Coordinator	410-545-2851	Jim Hade
Dist. 1, 2 Team Leader	410-545-2851	Jim Hade
Dist. 3, 5 Team Leader	410-545-8618	Rob Pearce
Dist. 4, 6, 7 Team Leader	410-545-8639	Rich Wilke

Landscape Operations Division (LOD)		
Permit Materials Review		
Forest Mitigation Coordinator, Statewide	410-545-8577	Joel Bush
Project Review Coordinator, Statewide	410-545-2891	John Krouse
Landscape Materials Inspection & Other Assistance During Construction		
Dist. 1,2 Eastern Shore Region Team Leader	410-221-1635	Mark Howard
Dist. 3, 5 Washington Metro, Southern Region Team Leader	410-780-6228	Pam Milby
Dist. 4, 6, 7 Baltimore Metro, Western Region Team Leader	410-780-6220	Fran Bateman

TMDL Team		
Permit Materials Review		
TMDL Review, Statewide	410-545-8407	Karen Coffman

3.3 Project Review by Office of Environmental Design (OED). OED assists the Access Management Division and District Offices to evaluate construction plans and ensure compliance with environmental laws and SHA landscape design standards.

As noted in Chapter 3.0, OED reviews plans and other materials submitted for an Access Permit or a District Permit when construction activities affect responsibilities under the administration of OED.

When OED responds to a request from the Access Management Division (AMD) or the District Office, the divisions of OED provide a coordinated response of recommendations in a memo sent directly to AMD or the District. However, the ultimate resolution of OED's concerns is the responsibility of AMD or the District. The recommendations of OED are not sent directly to the applicant.

Depending upon the application, either AMD or the District is responsible for all formal communication between SHA and the applicant. Therefore, all materials to be evaluated by SHA as part of a permit application must be submitted directly to AMD or the District. OED may not submit documents on behalf of an applicant.

Chapter 4 - Environmental Permits

- 4.0 Required Permits and Mitigation.** The Office of Environmental Design cooperates with state, federal and local agencies to ensure compliance with applicable laws. However, OED is not responsible for the preparation, submittal, or approval of these permits, or for developing mitigation strategies to satisfy legal requirements.

All coordination required to obtain permits required for construction under an Access Permit or a District Permit are solely the responsibility of the applicant. Therefore, the following information is provided for the benefit of the applicant, and to explain general requirements for permits and mitigation.

- 4.1 Roadside Tree Permit (RTP) & Other Mitigation.** Tree removals, tree installation, and impacts to tree branches or tree roots in the SHA right of way require a RTP issued by the Maryland Department of Natural Resources Forest Service. The 'SHA Landscape Design Guide' provides information about the Maryland Roadside Tree Law and other Maryland tree and forest laws.

The applicant for the Access Permit or District Permit is responsible for coordination required to obtain any required RTP prior to construction. The applicant shall provide plans or other documentation to explain the species, sizes, and locations of trees to be removed, impacted, or installed as well as the nature of any impacts to existing trees, and the proposed mitigation for tree removals.

Per the Roadside Tree Law, the applicant shall mitigate the loss of trees. As the property owner, however, SHA may request additional mitigation for the loss of brush, shrubs, ornamental plantings, and may request other landscaping or extended maintenance to restore and establish native vegetation in natural areas. Such mitigation is not required per Maryland law, but may be required as a permit condition by SHA.

OED typically requests 1:1 mitigation for trees and large shrubs, although additional mitigation may be required for significant or specimen trees. Thus, for most projects, each tree or large shrub to be removed shall be mitigated and replaced with at least one tree or large shrub selected from the 'SHA Preferred Plant List' and installed in conformance with Section 710, unless other mitigation is approved by SHA.

The Office of Environmental Design will review the Roadside Tree Permit and proposed mitigation as part of the permit review process. Conformance with the Roadside Tree Permit shall be a condition of the Access Permit or District Permit application, and the approved permit or plan notes shall indicate the applicable requirements.

4.2 Wetlands and Waterways Permit & Mitigation. Impacts to wetlands and waterways require permits issued by state and federal agencies. The applicant is expected to avoid and minimize construction impacts to wetlands and waterways on SHA property, and to restore affected areas to their preconstruction condition.

The applicant for the Access Permit or District Permit is responsible for obtaining all necessary permits and approvals for impacts to wetlands and waterways.

The permit application shall provide plans or other documentation to define the proposed impacts to SHA wetland or stream mitigation sites, the proposed construction activities, and the proposed measures to restore wetland and waterways.

The Office of Environmental Design will review the proposed plans as part of the permit application review process, and before the issuance of any wetlands and waterways permits by state or federal agencies.

Conformance with any approved Wetlands and Waterways permit shall be a condition of the Access Permit or District Permit application, and the approved permit or plan notes shall indicate the applicable requirements.

4.3 Impacts to Critical Area & Mitigation. Impacts to the Chesapeake and Atlantic Coastal Bays Critical Areas require permits and mitigation.

The applicant for the Access Permit or District Permit is responsible for securing permits or other approvals from the County for proposed impacts and mitigation within the Critical Area and Critical Area Buffer. The applicant shall provide information to the Office of Environmental Design about proposed impacts and mitigation activities as part of the permit application review process.

The 'SHA Landscape Design Guide' provides information about Critical Areas, regulated impacts to areas within the Critical Area and Critical Area Buffer, and mitigation for impacts to soil and vegetation within 1,000 ft. of tidal waters.

Conformance with the Critical Area mitigation plan shall be a condition of the Access Permit or District Permit application, and the approved permit or plans shall indicate the applicable requirements. Note: Critical Area mitigation exemptions described in the 'SHA Landscape Design Guide' are only applicable for mitigation performed by SHA as part of highway construction and maintenance.

- 4.4 TMDL Facilities.** The effort to restore the Chesapeake Bay has resulted in many new plantings of meadow, shrubs and trees in upland areas of the SHA roadway system, as well as the installation of special drainage features to capture, treat and infiltrate stormwater runoff in lowland areas. Many of these TMDL features are located in areas of the SHA right of way that may be directly or indirectly damaged by construction activities.

The TMDL program is linked to certain permits that SHA maintains and must comply with. Therefore, SHA requires that construction projects of applicants for Access Permits and District Permits must conform to the same standards.

The applicant is responsible for developing construction plans that document existing conditions, for proposing plans to restore or mitigate changes to existing TMDL facilities impacted by construction, and may be required to construct new facilities to offset the impacts of additional impervious surface, etc.

Although the Highway Hydraulics Division is responsible for reviewing engineering plans for stormwater treatment facilities in conformance with Maryland Law, the OED TMDL program must also review and document the proposed work and any proposed changes, and the Landscape Architecture Division must review and document the proposed plantings. Questions regarding existing TMDL facilities and mitigation strategies should be directed to the OED TMDL Team.

Chapter 5 - Special Landscape Concerns

- 5.0 Special Landscape Concerns.** Many key landscape concerns are summarized in Chapters 5.1 through 5.7, below. For more information about these issues and other topics of concerns, refer to the 'SHA Landscape Design Guide' and other Guidance Documents described Chapters 2.0 through 2.8.
- 5.1 Scenic Byways and Trails.** Numerous SHA roadways are designated as Scenic Byways, and many roadways also support or intersect Trails. These Byways and Trails, as well as their viewsheds, require special attention to preserve their character and value as natural and cultural resources.

Certain types of roadway reconstruction, excavation, pruning, tree removal, and other activities that might otherwise be acceptable in the SHA system may not be appropriate along Scenic Byways and Trails because they destroy or impair elements of these resources.

The 'SHA Landscape Design Guide' and 'SHA Context Sensitive Solutions for Work on Maryland Byways' provide information about the preservation of Scenic Byways and Trails. Corridor Management Plans have been developed for many Scenic Byways that provide descriptions of the intrinsic qualities and key cultural and natural features of the Scenic Byway. Guidance regarding Trails is also available from the Office of Environmental Design.

Conformance with required provisions for the preservation and enhancement of Scenic Byways, Recreational Trails, and segments of the Maryland Trail System shall be required as a condition of the Access Permit or District Permit application, and the permit or plan shall indicate the applicable requirements.

Any changes to approved permits and plans along a Scenic Byway, Recreational Trails, or segment of the Maryland Trail System will require review by the Office of Environmental Design.

5.2 Environmental Area Protection. Access Permit and District Permit applicants are expected to provide all reasonable measures to protect environmental resources.

The following measures may be required to protect environmental resources as part of permit requirements for construction: Directional boring, Temporary Orange Construction Fence, Tree Planking, Timber Mats, Compost Logs, other practices to reduce impacts or damage to trees and environmental areas.

Specific measures to protect environmental resources shall be indicated in permits and plans, and the use of such measures shall be required as a condition of the approved permit.

Any changes to approved permits and plans will require review by the Office of Environmental Design and concurrence of applicable federal or state permitting authorities.

5.3 Tree Preservation Areas and Pruning Standards. Access Permit and District Permit applicants are expected to limit unnecessary removals and impacts to trees on SHA property.

- **Tree Preservation Areas.** When construction projects may damage sensitive trees or other landscaping, the applicant shall delineate Tree Preservation Areas at the dripline of the trees, or along the edge of the landscaped areas to be preserved.

Section 120 of the 'Standard Specifications' provides standards for Tree Preservation Areas, and defines certain prohibited and restricted activities within Tree Protection Areas surrounded by Temporary Orange Construction Fence (TOCF). Tree Protection Areas, including natural areas adjacent to approved permit construction sites are protected with TOCF as required for Tree Preservation Areas in conformance with Section 120.

- **Pruning Standards.** Sections 712 through 716 of the 'Standard Specifications' provide requirements for activities that impact trees. Pruning on SHA property shall conform to the 'Standard Specifications', which reference 'ANSI A-300 Standards for Tree Care Operations' as the standard methods. The permit documents or plans shall indicate the requirement to conform with the 'Standard Specifications' and ANSI A-300 Standards.

The goals and limits of pruning operations and measures to protect trees shall be indicated on permit applications and on approved plans. The use of such measures shall be required as a condition of the Access Permit or District Permit, and any changes to approved permits or plans will require review by the Office of Environmental Design and applicable permitting authorities.

- 5.4 Tree & Brush Clearance for Aesthetic Enhancement or Visibility.** Requests from nearby residential or commercial property owners for permission to prune or remove trees on SHA property often involves an interest to improve the appearance of the area, or to improve the visibility of commercial signs, buildings, etc.

However, per the Maryland Roadside Tree Law, SHA must protect trees growing in the right of way from unnecessary impacts and removals. Any request to remove trees for aesthetic enhancement or to improve visibility will require the applicant to perform a site review and to prepare landscape plans which describe all site impacts and mitigation for removal of trees, etc. When proposed landscaping may require a higher level of future maintenance, refer to Chapter 5.7.

Conformance with the landscape plan shall be required as a condition of the permit application, and the permit documents or plan notes shall indicate the applicable requirements. Any changes to approved permits or plans will require concurrence of the Office of Environmental Design and applicable permitting authorities.

- 5.5 Offset Distance to Roads and Utilities.** The 'SHA Landscape Design Guide' provides extensive guidance regarding safe and sustainable landscape design.

The minimum offset distances from trees to overhead and underground utilities, as well as the minimum offset distances from trees to roadways, guardrails and structures are provided 'SHA Landscape Design Guide'.

Unless other offset distances are approved and indicated on the landscape plans, the offset distances of the 'SHA Landscape Design Guide' shall be used to ensure appropriate offset distances.

- 5.6 Demolition, Clearing & Grubbing, Excavation, and Restoration.** Construction activities that disturb soil, plant materials, pavements, or structures are generally expected to minimize impacts caused by construction.

Excavation and construction within the Limits of Disturbance (LOD) must conform with Section 101 - Clearing and Grubbing of the 'Standard Specifications' so that stumps and other debris that may adversely impact the installation, future stability, or maintenance of pavements, sidewalks, hardscape, turfgrass, plant materials, etc. are removed as part of an Access Permit or District Permit.

Since the expectation of SHA is that all areas within the approved LOD are subject to demolition and removal, the applicant shall indicate any areas, trees or other materials within the LOD that will not be removed.

Therefore:

- The applicant shall develop plans to restore soils of landscaped areas; to promote sustainable growth of vegetation; to mitigate the loss of trees and other vegetation; to restore pavements and structures; and to conform with design requirements of SHA and all legal requirements.
- The applicant shall delineate and note measures to protect sensitive areas, trees, pavements, structures, etc. within or adjacent to the LOD that must be protected from construction impacts.
- The applicant shall specify the installation of Temporary Orange Construction Fence per Section 120, or propose other methods, and insert any notes that may be required to clearly indicate the areas or objects to be preserved, and the methods for their protection.

5.6-a Restoration of Soil. Excess excavated materials, debris, drilling mud, and other unsuitable materials shall be removed from work areas. Ruts shall be repaired with approved topsoil. The grade of excavated areas shall be restored with approved subsoil before a 4 inch layer of approved topsoil is placed in conformance with Section 701. The permit or plans shall indicate the soil materials, thickness, and other requirements.

5.6-b Restoration of Turfgrass. Areas within 10 feet of the pavement edge where turfgrass groundcover already exists, or is required to provide permanent soil stabilization, shall be restored with turfgrass seed in conformance with Section 705, with or without the installation of soil stabilization matting per Section 709.

In urban areas, and near sidewalks, driveways and other areas such as grass-lined swales and channel where more rapid turfgrass establishment is desirable, turfgrass sod shall be installed in conformance with Section 708. The permit or plans shall indicate the specific requirements for sod or turfgrass seeding, with or without soil stabilization matting.

5.6-c Restoration of Meadow and Naturalized Areas. Meadows and other naturalized areas shall be restored in conformance with Section 707, 706, or 705 as required by SHA. Meadow vegetation within the SHA right of way is mowed by SHA once per year or less. The installation of meadow vegetation in areas more than 10 feet from the pavement edge is generally preferred where its installation is consistent with safe highway operation and the context of adjacent landscaping.

Shrub seeding is installed in areas that are not mowed. The installation of shrub seeding in naturalized areas more than 10 feet from the pavement edge is generally preferred where its installation is consistent with safe highway operation and the context of adjacent natural areas. The permit or plans shall indicate the specific requirements and areas to be seeded with Meadow Establishment or Shrub Seeding Establishment.

5.6-d Restoration of Shrubs and Landscape Beds. Shrubs and Landscape Beds shall be restored as required by SHA in conformance with Section 710 or Section 711. The permit or plans shall indicate the plant materials, installation sizes, and other restoration requirements.

5.6-e Installation or Restoration of Structures, Hardscape, etc. Retaining walls, pavers, steps, railings, trash receptacles, bike racks, and other street furniture shall be removed and reset or reconstructed to the same grades and locations, or as approved by SHA. The composition, surface finish, and other pertinent specifications for materials to be installed shall be clearly indicated in the plans.

5.7 Future Maintenance. SHA is committed to providing a safe, attractive roadside environment. However, to limit the costs of future maintenance provided by SHA, and to allow adjoining property owners the ability to provide a higher level of maintenance, SHA also provides mechanisms for those whom wish to provide additional maintenance for landscaped areas of the roadway.

Except for those areas that are planted by SHA at gateways, monuments and other specially landscaped areas, the only routine maintenance that SHA provides is mowing. Meadow areas are typically mowed once per year, and turfgrass areas within 10 feet of the pavement edge are typically mowed three times per year.

SHA will only provide mowing maintenance for turfgrass areas installed by others. Planting beds and other ornamental plantings may be installed by adjoining property owners and others willing to provide the necessary maintenance as part of a right of entry agreement under a District Permit issued by the pertinent SHA District Office. Refer to Chapter 7.23 regarding the Future Maintenance Landscape Note.

Note: Landscape plans submitted for an Access Permit or District Permit that involve the installation of planting beds or plant materials that will require additional maintenance to remain safe and attractive, but which seem unlikely to receive adequate future maintenance by the applicant, may be restricted to species and designs that are sustainable by SHA without significant additional maintenance.

Chapter 6 - Landscape Plans

6.0 Landscape Plans. Projects that require a permit issued by the Access Management Division or District Office often require formal landscape plans developed by the applicant to ensure adequate site restoration and installation of approved materials.

The landscape plans shall explain the construction activities, excavation methods, and measures to restore areas using materials and construction methods in conformance with the 'Standard Specifications'.

The Office of Environmental Design will review landscape plans as part of the Access Permit and District Permit review process.

6.1 Landscape Plan Preparation. Landscape plans may be sealed by different qualified professional staff, depending upon the anticipated impacts:

- **Landscape Architect.** Landscape plans developed for an Access Permit or District permit that involve the removal or installation of trees, shrubs, decorative landscaping or structures within the SHA right of way shall be sealed by a Registered Landscape Architect or Professional Landscape Architect licensed in the state of Maryland.
- **Professional Engineer or Surveyor.** Plans may be developed by a Professional Engineer or Surveyor licensed in the state of Maryland when impacts only involve soil disturbance or the installation of turfgrass with or without soil stabilization matting for permanent vegetation groundcover.

6.2 Landscape Plan Elements. Landscape plans shall conform to the requirements of the Access Management Division or the District Office. Landscape plans shall also generally conform to the standards of the 'SHA Landscape Design Guide' which are summarized in 6.2-a through 6.2-f, below.

6.2-a Labels. Landscape plans shall clearly show the plan scale, direction of north, topography and grading lines, the names of roads, the posted highway speed, and any other information that may affect the evaluation of the plan. This may include the development of different sheets to show existing conditions and proposed construction. When plans involve changes to roadway pavements, signs or markings, the landscape plan shall also include the proposed modifications.

6.2-b Right of Way Line, Sign, and Structures. Landscape plans shall clearly show the right of way lines, the locations of structures and signs in the right of way and adjacent property. They shall also show the location of all known overhead and underground utility lines, poles and structures in the right of way.

6.2-c Existing Vegetation. Impacts to existing vegetation in the SHA right of way shall be clearly described. When projects may involve extensive impacts to existing trees, shrubs or planting beds, it is recommended that the applicant prepare a separate sheet to describe the impacted vegetation.

- **Existing Groundcover.** Landscape plans shall clearly indicate existing ground-cover in the right of way. Areas of turfgrass, meadow, planting beds, and brush shall be identified or characterized as appropriate. Areas of ornamental vegetation shall be described in detail if they will be negatively impacted by construction.
- **Existing Trees & Large Shrubs .** Landscape plans shall clearly indicate the locations, species, diameter (DBH) and condition of existing trees and large shrubs to be removed or impacted by construction in the right of way.

6.2-d Proposed Vegetation . Landscape plans shall clearly show the locations, species, cultivars, installation sizes and location of all trees, shrubs, perennials, and ornamental grasses to be installed in the right of way. The location and composition of herbaceous vegetation such as turfgrass sod, and seeded materials such as turfgrass and meadow shall be indicated on the plans and generally conform to the requirements of the 'Standard Specifications'.

6.2-e Planting Schedule and Master Plant List. The species, cultivars, and installation size of plant materials to be installed in the SHA right of way shall be selected from the 'SHA Preferred Plant List' or as approved, and shall be summarized in the Planting Schedule of the landscape plans.

- **Planting Schedule, per sheet.** Each landscape sheet shall include a planting schedule of the ornamental plant materials (trees, shrubs, perennials, ornamental grasses, etc.) to be installed per that sheet.
- **Master Plant List.** A master plant list shall be included in the landscape plans when more than one landscape sheet with ornamental plant materials is included in the plan set. The master plant list shall include the total quantities of ornamental plant materials of the individual planting schedules.

6.2-f Tree Felling and Brush Removal. Tree Felling and Brush Removal operations are limited to areas within Tree Preservation Areas, or areas outside the Limits of Disturbance (LOD) of a project. When trees and brush are included within the LOD of a project, it is expected that they will be removed in their entirety per Section 101 - Clearing and Grubbing of the 'Standard Specifications' unless measures are proposed for their protection.

Refer to Chapter 5.6 and the 'Estimating Manual' for additional information about Clearing and Grubbing, Tree Felling, and Brush Removal.

The landscape plans shall indicate the trees or brush to be removed and the Operations to be performed in conformance with Section 713 and 714 of the 'Standard Specifications'. Unless other procedures are approved and noted in the plans, the Operations of Tree Felling and Brush Removal shall be performed as described below, and the pertinent SHA Landscape Notes shall be inserted in conformance with Chapter 7.

Tree Felling on SHA property shall be performed by a Maryland Licensed Tree Expert in conformance with the 'Standard Specifications', the Maryland Tree Expert Law, the Maryland Roadside Tree Law, the Maryland Forest Conservation Act, and accepted arboricultural practices.

- **Tree Felling in Turfgrass Areas.** Trees within regularly mowed areas of the right of way shall be felled, the stumps shall be ground, and the debris shall be removed in conformance with Operation 1 - Felling and Stump Removal of Section 714.

- **Tree Felling in Meadow Areas.** Trees within meadow areas of the right of way that are not routinely mowed shall be felled, the stumps shall be treated with herbicide, and the debris shall be removed in conformance with Operation 2 - Felling and Stump Treatment of Section 714. Debris may be chipped and distributed over the soil surface to a depth less than 1 inch.
- **Tree Felling in Naturalized Areas.** Trees in naturalized areas shall be felled in conformance with Operation 4 - Felling and Delimbing of Section 714.

Brush Removal. Brush Removal on SHA property shall be performed by a Maryland Licensed Tree Expert in conformance with the 'Standard Specifications'. The removal of brush is not regulated under the Maryland Roadside Tree Law.

Brush shall be removed from the right of way in conformance with Operation 2 – Brush Removal with Stump Treatment of Section 713. Debris from brush removal may be removed or chipped and distributed over the soil in naturalized areas to a depth less than 1 inch.

6.2-g Tree Branch Pruning, Tree Root Pruning, and Tree Fertilizing. These operations are performed on trees to remain on SHA property, either within designated Tree Preservation Areas, or outside the limits of disturbance (LOD) of a project. The work shall be performed by a Maryland Licensed Tree Expert in conformance with the 'Standard Specifications', the Maryland Tree Expert Law, the Maryland Roadside Tree Law, and accepted arboricultural practices.

Refer to Chapter 5.3, Chapter 5.4, and the 'Estimating Manual' for additional information about Tree Branch Pruning, Tree Root Pruning, and Tree Fertilizing.

The landscape plans shall indicate the trees and areas where the work will be performed in conformance with Section 712, 715, and 716 of the 'Standard Specifications'. Unless other procedures are approved and noted in the plans, the Operations shall be performed as described below, and the pertinent SHA Landscape Notes shall be inserted in conformance with Chapter 7.

- **Tree Branch Pruning** is performed to eliminate dead wood or hazards, or to improve clearance for pedestrians, bicycles, and vehicles, or to improve visibility to signs and traffic control devices.
- **Tree Root Pruning** is performed to reduce construction impacts to trees to remain. Tree Root Pruning is usually specified at the edge of the LOD or at the dripline of trees to be preserved, and is completed before other construction begins. Note: Tree Root Pruning will be required for the preservation of larger trees when construction impacts are expected to reduce the critical root zone.
- **Tree Fertilizing** is performed to reduce construction impacts to trees to remain, or to promote regrowth following Tree Branch Pruning or Tree Root Pruning. Note: Tree Fertilizing will be required when Tree Root Pruning or other construction impacts are expected to reduce the critical root zone.

Chapter 7 - SHA Landscape Notes

7.0 Required SHA Landscape Notes. To ensure the use of approved materials and conformance with SHA construction methods during construction, plans developed for Access and District permits shall include project-specific SHA Landscape Notes.

- Selection of SHA Landscape Notes depends upon the work to be performed.
- SHA Landscape Notes are not shown on plans when no landscaping per Cat. 700 - Landscaping of the 'Standard Specifications' is required for a project.
- SHA Landscape Notes that do not apply to a project are not shown on plans.

Chapter 7 describes the conditions and provides the exact text of the notes that shall be included on landscape plans when landscaped areas of the SHA right of way are impacted by construction. When a SHA Landscape Note is appropriate, the text of the pertinent note shall be shown on the landscape plan under a single prominent heading as part of a single list or within a single text box.

The title provided for the SHA Landscape Notes, and the text of all pertinent notes, shall be reproduced in the italic text as shown in Chapter 7.

7.1 Title for SHA Landscape Notes. When SHA Landscape Notes are required, the following title shall be shown on the plans, and all required notes shall be included underneath it:

SHA LANDSCAPE NOTES. *Landscape construction within the right of way of the Maryland State Highway Administration (SHA) shall conform to these notes.*

7.2 SHA Standard Specifications. When construction involves soil disturbance, seeding, tree installation or the installation of any other landscaping or plant materials in the SHA right of way, the following note shall be inserted into the SHA Landscape Notes:

SHA Standard Specifications. *Landscape construction shall conform to Sections 701 through 716 and landscape materials shall conform to Section 920 of the SHA 2008 Standard Specifications for Construction and Materials, including all revisions or supplements, and as specified in these notes. These requirements shall supersede all other specifications for work within the SHA right of way.*

7.3 Erosion and Sediment Control Manager. In conformance with requirements of the Maryland Department of the Environment and policies of SHA, all projects that involve soil disturbance on SHA property shall be supervised by a certified Erosion and Sediment Control Manager.

The Erosion and Sediment Control Manager shall possess both the 'MDE Green Card' and the 'SHA Yellow Card'. The Erosion and Sediment Control Manager shall be present at the construction site during soil disturbance or excavation, and shall supervise the implementation of any required Erosion & Sediment Control Plan.

Note: The Maryland Dept. of the Environment (MDE) 'Responsible Personnel Training for Erosion & Sediment Control' (MDE Green Card) is required for the Basic Erosion and Sediment Control Course (SHA Yellow Card).

When construction activities require soil disturbance within the SHA right of way, the following note shall be inserted into the SHA Landscape Notes:

Erosion & Sediment Control Manager. Soil disturbance such as grading, excavation, soil placement or other activities that involve soil disturbance within the SHA right of way shall be supervised by an Erosion and Sediment Control Manager with a valid SHA 'Yellow Card' in conformance with SHA 2008 Specifications for Construction and Materials and any applicable Erosion and Sediment Control Permit.

- 7.4 SHA Standard Details for Trees, Shrubs and Planting Beds.** When landscaping will involve the installation of trees, shrubs, planting beds and related landscape construction within the SHA right of way related to Section 710 of the SHA Standard Specifications, the following note shall be inserted into the SHA Landscape Notes:

SHA Standard Details for Trees, Shrubs and Planting Beds. The installation of trees, shrubs, planting beds, and other landscape construction in the SHA right of way related to Section 710 of the SHA Standard Specifications shall conform to the SHA Book of Standards for Highway & Incidental Structures - Category 7.

- 7.5 Temporary Stabilization.** When construction will remove pavement, or will involve any other activities such as grading, tilling, or other disturbance the leaves the soil of the right of way vulnerable to erosion from rain or flowing water, the following note shall be inserted into the SHA Landscape Notes:

Temporary Stabilization shall be installed in conformance with Section 704 to ensure that areas of soil disturbance are protected from rainfall and flowing water until permanent stabilization is installed.

1. *Temporary Mulch, either as temporary straw mulch or temporary matting mulch, shall be installed at the end of each working day to provide 'same day stabilization' unless other approved stabilization is installed.*
2. *Temporary straw mulch shall be installed on areas and slopes flatter than 4:1; temporary matting mulch shall be applied on slopes 4:1 and steeper, and to areas within channels.*
3. *Temporary Seed shall be installed in lieu of Temporary Mulch when soil redistribution is expected more than 30 days after soil disturbance. The required application rate of 20-16-12 fertilizer shall be reduced to 200 lbs per acre.*

- 7.6 Roadway Pavement Removal.** When landscaping involves removal of roadway pavements in preparation for the restoration of landscaped areas for permanent vegetation, the following note shall be inserted into the SHA Landscape Notes:

Roadway Pavement Removal. *Areas of roadway pavement removal within the SHA right of way shall be excavated to remove pavements, aggregate base, and compacted soil to a minimum depth of 10 inches below the pavement surface, or as necessary to remove all materials unsuitable for landscaping. The excavated areas shall be restored with subsoil and topsoil as part of Soil Restoration.*

- 7.7 Excavation and Debris Removal.** When landscaping involves the removal of sidewalks, paved or gravel driveways, curbs, trees, stumps, fencing, abandoned pipes, and similar construction debris in preparation for the restoration of landscaped areas for permanent vegetation, the following note shall be inserted into the SHA Landscape Notes:

Excavation and Debris Removal. *Debris related to the demolition of sidewalks, driveways, curbs, trees, stumps, roots, fencing, pipes, and other materials that may interfere with landscape installation or future maintenance within the SHA right of way shall be excavated as necessary for their complete removal and disposal.*

- 7.8 Soil Restoration.** Soil restoration may involve excavation followed by restoration with subsoil and topsoil, or restoration with bioretention soil mix (BSM) and related materials in stormwater management facilities. The requirements are determined by the Office of Environmental Design and Highway Hydraulics Division. When landscaping involves excavation of pavement, utility trenching, drilling, or any similar work in preparation for the restoration of landscaped areas for permanent vegetation, the following note shall be inserted into the SHA Landscape Notes:

Soil Restoration. *Areas of pavement removal, excavation or drilling in landscaped areas shall remove excavated debris and restore the subgrade with approved subsoil and topsoil placed in conformance with Section 701 of the SHA Standard Specifications.*

- 1. A layer of approved topsoil at least 4 inch depth shall be placed on all disturbed areas flatter than 2:1 and in all channels prior to seeding, sodding or other landscaping, unless otherwise specified.*
- 2. A layer of approved topsoil at least 2 inch depth shall be placed on all disturbed areas 2:1 and steeper prior to seeding, sodding or other landscaping, unless otherwise specified.*
- 3. Bioretention Soil Mix (BSM) shall be installed in conformance with the plans and pertinent specifications.*

- 7.9 Turfgrass Sod Establishment.** When landscaping involves the restoration of turfgrass sod in urban or suburban areas, or areas that are adjacent to commercial or residential properties where pedestrians may be expected, or where stormwater is conveyed in grass-lined channels, the groundcover vegetation of areas impacted by construction shall be restored with turfgrass sod, and the following note shall be inserted into the SHA Landscape Notes:

Turfgrass Sod Establishment shall be performed in all disturbed areas of the SHA right of way, or within the areas indicated in the plans, in conformance with Section 708 of the SHA Standard Specifications. The required application rate of 20-16-12 fertilizer shall be reduced to 200 lbs per acre, and no fertilizer shall be applied from Nov. 15 to Mar. 1.

- 7.10 Turfgrass Establishment.** When landscaping involves the restoration of turfgrass in rural areas, the groundcover vegetation of areas impacted by construction shall be restored with turfgrass seeding, and the following note shall be inserted into the SHA Landscape Notes:

Turfgrass Establishment shall be performed in all disturbed areas of the SHA right of way, or within the areas indicated in the plans, in conformance with Section 705 of the SHA Standard Specifications. The required application rate of 20-16-12 fertilizer shall be reduced to 200 lbs per acre, and no fertilizer shall be applied from Nov. 15 to Mar. 1.

- 7.11 Soil Stabilization Matting.** The types of soil stabilization matting and their specific uses are described in the 'SHA Landscape Estimating Manual'. When landscaping involves Turfgrass Establishment, the following note shall be inserted into the SHA Landscape Notes:

Soil Stabilization Matting shall be installed in conformance with Section 709 of the SHA Standard Specifications, in conjunction with Turfgrass Establishment per Section 705 as follows:

1. Areas Flatter than 6:1. Type A or Type E matting may be installed in lieu of straw mulch and hydromulch binder.
2. Areas Steeper than 6:1 and Flatter than 4:1. Type A or Type E matting shall be installed in lieu of straw mulch and hydromulch binder.
3. Channels, Stormwater Management Facilities, and Slopes 4:1 and Steeper. Type A soil stabilization matting shall be installed in lieu of straw mulch and hydromulch binder.

- 7.12 Meadow Establishment or Shrub Seeding Establishment.** When landscaping involves the restoration of meadow in areas that are mowed one time or less per year, or involves Shrub Seeding Establishment in natural areas that are not mowed, the groundcover vegetation of areas impacted by construction shall be restored with Meadow Establishment or Shrub Seeding Establishment as described in the plans, and the following note shall be inserted into the SHA Landscape Notes.

Meadow Establishment or Shrub Seeding Establishment shall be performed in areas of the SHA right of way as indicated in the plans, in conformance with Sections 706 and 707 of the SHA Standard Specifications. The required application rate of 20-16-12 fertilizer shall be 200 lbs per acre.

7.13 Tree Preservation Areas. When trees or other vegetation to remain is included with the Limits of Disturbance, or areas that require protection are adjacent to the Limits of Disturbance, the trees or other vegetation to be protected shall be indicated in the plans. Refer to Section 120 - Tree Preservation Areas of the Standard Specifications.

Areas surrounded by Temporary Orange Construction Fence (TOCF) are considered Tree Preservation Areas per Section 120, and are protected from certain prohibited and restricted activities in conformance with those specifications. Such areas must be protected with TOCF during construction, and the plans shall clearly delineate the 'Tree Preservation Area' using that term, or any of the following abbreviations: 'TPA', 'TOCF' or 'TPF' (tree protection fence).

The following note shall be inserted into the SHA Landscape Notes for Tree Preservation Areas and all areas to be protected with TOCF:

Tree Preservation Areas. Temporary Orange Construction Fence (TOCF) shall be installed in locations delineated on the plans as Tree Preservation Areas (TPA) in conformance with Section 120 of the SHA Standard Specification to protect existing trees and other vegetation during construction. Areas of SHA right of way within TOCF shall be protected from all prohibited and restricted activities, as specified in Section 120.

7.14 Roadside Tree Permit (RTP). A Roadside Tree Permit issued by the Maryland Department of Natural Resources is required when trees are removed, pruned, or installed in the SHA right of way. The applicant is responsible for all coordination required to obtain this permit.

No tree removals, pruning or installation may be performed within the SHA right of way unless a Roadside Tree Permit has been issued, and a copy of the Permit has been submitted to the Office of Environmental Design. When landscaping requires a Roadside Tree Permit, the following note shall be inserted into the SHA Landscape Notes:

Roadside Tree Permit. Tree removal, tree installation, tree root and branch pruning, and other regulated impacts to trees in the SHA right of way shall conform to the requirements of the Roadside Tree Permit (RTP) of the Maryland Department of Natural Resources, or the Forest Conservation Act (FCA) approval of the local authority.

1. A copy of the RTP or FCA Approval shall be submitted to the SHA Office of Environmental Design before work is performed, and a copy of the RTP or FCA Approval shall be reproduced in the plans or be in possession of the applicant at the project site when the permitted work is performed.
2. A Maryland Licensed Tree Expert shall perform the specified tree operations in conformance with the SHA Standard Specifications and ANSI A300 Standards for Tree Care Operations.

- 7.15 Installation of Trees, Shrubs, other Landscape Plantings.** When landscaping involves the installation of trees, shrubs, perennials, landscape beds, annuals, bulbs, or other landscape plants or materials, the following note shall be inserted into the SHA Landscape Notes:

Trees and Other Plant Material Installation. *Trees, shrubs, perennials, annuals, bulbs, landscape beds and similar materials installed in the SHA right of way shall be installed in conformance with Section 710 and 711 of the SHA Standard Specifications. Tree and shrubs shall be pruned at the time of installation to ensure sidewalk clearance for pedestrians is maintained to a height of 8 feet.*

- 7.16 Brush Removal.** When landscaping involves brush removal within the SHA right of way, the areas of brush removal shall be identified in the landscape plans and the following note shall be inserted into the SHA Landscape Notes:

Brush Removal *in the SHA right of way shall be performed in conformance with Operation 2 - Brush Removal with Stump Treatment of Section 713. Debris shall be removed, or chipped and distributed on SHA property to a maximum depth of 1 inch within brush removal areas, or in meadow or naturalized areas.*

- 7.17 Tree Felling in Turfgrass Areas.** When landscaping involves tree felling in turfgrass areas that are routinely mowed, the trees to be felled shall be identified in the landscape plans and the following note shall be inserted into the SHA Landscape Notes:

Tree Felling in Turfgrass Areas *of the SHA right of way shall be performed in conformance with Operation 1 - Felling and Stump Removal of Section 714. All debris shall be removed from SHA property.*

- 7.18 Tree Felling in Meadow Areas.** When landscaping involves tree felling in meadow areas that are not routinely mowed, the trees to be felled shall be identified in the landscape plans and the following note shall be inserted into the SHA Landscape Notes:

Tree Felling in Meadow Areas *of the SHA right of way shall be performed in conformance with Operation 2 - Felling and Stump Treatment of Section 714. All debris shall be removed, or chipped and distributed within meadow areas of SHA property, to a maximum depth of 1 inch.*

- 7.19 Tree Felling in Natural Areas.** When landscaping involves tree felling in naturalized areas, the trees to be felled shall be identified in the landscape plans, and the following note shall be inserted into the SHA Landscape Notes:

Tree Felling in Natural Areas *of the SHA right of way shall be performed in conformance with Operation 4 - Felling and Delimbing of Section 714.*

- 7.20 Tree Branch Pruning.** When landscaping involves the removal of branches from existing trees within the SHA right of way, the trees to be pruned shall be identified in the landscape plans. The following shall be inserted into the SHA Landscape Notes, except the underlined text shall be removed and replaced with text to specify the required pruning:

***Tree Branch Pruning** within the SHA right of way shall be performed in conformance with Section 712 as follows: Applicant to explain goals of pruning, including height of clearance, etc., and all debris shall be removed from SHA property.*

- 7.21 Tree Root Pruning.** When landscaping involves tree root pruning, the trees to be pruned shall be identified in the landscape plans, and the following note with instructions for the pruning shall be inserted into the SHA Landscape Notes:

***Tree Root Pruning** in the SHA right of way shall be performed along the line shown on the plans in conformance with Section 715. Tree Root Pruning shall be completed before beginning excavation or construction adjacent to trees to be preserved.*

- 7.22 Tree Fertilizing.** When landscaping involves tree fertilizing, the trees to be fertilized shall be identified in the landscape plans. The following shall be inserted into the SHA Landscape Notes for Tree Fertilizing, or modified as appropriate to specify the fertilizer materials and methods:

***Tree Fertilizing** in the SHA right of way shall be performed in conformance with Operation 1 - Broadcast Fertilizing per Section 716. 20-16-12 fertilizer shall be applied to the soil surface under the dripline of trees at the rate of 200 lbs. per acre.*

- 7.23 Finished Materials.** When landscaping involves the installation of retaining walls, stone mulch, unit pavers, decorative light poles, trash receptacles, bike racks, and other materials with specially colored or decorative finishes, the materials shall be specified and their locations indicated in the landscape plans.

Such finished materials shall match the color and quality of existing nearby materials in the right of way, or shall be determined to be acceptable alternatives. The following shall be inserted into the SHA Landscape Notes, except the underlined text shall be removed and replaced with text to specify the finished materials:

***Finished Materials.** The suitability, color and texture of applicant to insert name of materials to be installed in the SHA right of way shall be approved before installation. The contractor shall furnish samples or make arrangements for inspection and approval at the project site.*

- 7.24 Future Maintenance.** Refer to Chapter 5.7. When landscaping involves the installation of hardscape, street furniture, trees, shrubs, perennials, annuals, planting beds or any other landscape materials for which additional maintenance is appropriate or desirable, the following note shall be inserted into the SHA Landscape Notes:

Future Maintenance. Additional maintenance that may be required after hardscape, street furniture, or plant materials are installed and accepted by SHA such as replacement, watering, weeding, mulching or pest control may be provided by the applicant when a permit for the proposed work is issued by the SHA District Office.

7.25 Quick Guide to SHA Landscape Notes. The following table summarizes the required SHA Landscape Notes described in Chapter 7.0 through 7.24. Numbers refer to Sections of the ‘Environmental Guide’. When SHA Landscape Notes are required for a project, the title and text of the pertinent notes shall be reproduced in at least one location in the landscape plan as a single list or within a single text box.

- The title ‘SHA Landscape Notes’ shall be placed as a prominent heading, and the text of each required note shall be shown under the title.
- Since these notes are intended to specify required construction activities, Notes that do not apply to a project shall not be included in the SHA Landscape Notes.

Environmental Guide Chapter & Subject		Text of SHA Landscape Notes
		<p>The applicant shall insert the title and text of each pertinent note as shown below.</p> <p>The notes for Tree Branch Pruning and Finished Materials require additional information to be provided by the applicant. Other notes may require project-specific modifications.</p>
7.1	Title	<p>SHA LANDSCAPE NOTES. Landscape construction within the right of way of the Maryland State Highway Administration (SHA) shall conform to these notes.</p>
7.2	Specifications	<p>SHA Standard Specifications. Landscape construction shall conform to Sections 701 through 716 and landscape materials shall conform to Section 920 of the SHA 2008 Standard Specifications for Construction and Materials, including all revisions or supplements, and as specified in these notes. These requirements shall supersede all other specifications for work within the SHA right of way.</p>
7.3	E&S Manager	<p>Erosion & Sediment Control Manager. Soil disturbance such as grading, excavation, soil placement or other activities that involve soil disturbance within the SHA right of way shall be supervised by an Erosion and Sediment Control Manager with a valid SHA ‘Yellow Card’ in conformance with SHA 2008 Specifications for Construction and Materials and any applicable Erosion and Sediment Control Permit.</p>
7.4	Standard Details	<p>SHA Standard Details for Trees, Shrubs and Planting Beds. The installation of trees, shrubs, planting beds, and other landscape construction in the SHA right of way related to Section 710 of the SHA Standard Specifications shall conform to the SHA Book of Standards for Highway & Incidental Structures - Category 7.</p>
7.5	Temporary Stabilization	<p>Temporary Stabilization shall be installed in conformance with Section 704 to ensure that areas of soil disturbance are protected from rainfall and flowing water until permanent stabilization is installed.</p> <ol style="list-style-type: none"> 1. Temporary Mulch, either as temporary straw mulch or temporary matting mulch, shall be installed at the end of each working day to provide ‘same day stabilization’ unless other approved stabilization is installed. 2. Temporary straw mulch shall be installed on areas and slopes flatter than 4:1; temporary matting mulch shall be applied on slopes 4:1 and steeper, and to areas within channels. 3. Temporary Seed shall be installed in lieu of Temporary Mulch when soil redisturbance is expected more than 30 days after soil disturbance. The required application rate of 20-16-12 fertilizer shall be reduced to 200 lbs per acre.

7.6	Roadway Pavement Removal	Roadway Pavement Removal. Areas of roadway pavement removal shall be excavated to remove pavements, aggregate base, and compacted soil to a minimum depth of 10 inches below the pavement surface, or as necessary to remove all unsuitable materials for landscaping. The excavated areas shall be restored with subsoil and topsoil as part of Soil Restoration.
7.7	Excavation and Debris Removal	Excavation and Debris Removal. Debris related to the demolition of sidewalks, driveways, curbs, trees, stumps, roots, fencing, pipes, and other materials that may interfere with landscape installation or future maintenance within the SHA right of way shall be excavated as necessary for their complete removal and disposal.
7.8	Soil Restoration	<p>Soil Restoration. Areas of pavement removal, excavation or drilling in landscaped areas shall remove excavated debris and restore the subgrade with approved subsoil and topsoil placed in conformance with Section 701 of the SHA Standard Specifications.</p> <ol style="list-style-type: none"> 1. A layer of approved topsoil at least 4 inch depth shall be placed on all disturbed areas flatter than 2:1 and in all channels prior to seeding, sodding or other landscaping, unless otherwise specified. 2. A layer of approved topsoil at least 2 inch depth shall be placed on all disturbed areas 2:1 and steeper prior to seeding, sodding or other landscaping, unless otherwise specified. 3. Bioretention Soil Mix (BSM) shall be installed in conformance with the plans and pertinent specifications.
7.9	Turfgrass Sod Establishment	Turfgrass Sod Establishment shall be performed in all disturbed areas of the SHA right of way, or within the areas indicated in the plans, in conformance with Section 708 of the SHA Standard Specifications. The required application rate of 20-16-12 fertilizer shall be reduced to 200 lbs per acre, and no fertilizer shall be applied from Nov. 15 to Mar. 1.
7.10	Turfgrass Establishment	Turfgrass Establishment shall be performed in all disturbed areas of the SHA right of way, or within the areas indicated in the plans, in conformance with Section 705 of the SHA Standard Specifications. The required application rate of 20-16-12 fertilizer shall be reduced to 200 lbs per acre, and no fertilizer shall be applied from Nov. 15 to Mar. 1.
7.11	Soil Stabilization Matting	<p>Soil Stabilization Matting shall be installed in conformance with Section 709 of the SHA Standard Specifications, in conjunction with Turfgrass Establishment per Section 705 as follows:</p> <ol style="list-style-type: none"> 1. Areas Flatter than 6:1. Type A or Type E matting may be installed in lieu of straw mulch and hydromulch binder. 2. Areas Steeper than 6:1 and Flatter than 4:1. Type A or Type E matting shall be installed in lieu of straw mulch and hydromulch binder. 3. Channels, Stormwater Management Facilities, and Slopes 4:1 and Steeper. Type A soil stabilization matting shall be installed in lieu of straw mulch and hydromulch binder.
7.12	Meadow, Shrub Establishment	Meadow Establishment or Shrub Seeding Establishment shall be performed in areas of the SHA right of way as indicated in the plan, in conformance with Sections 706 and 707 of the SHA Standard Specifications.
7.13	Tree Preservation Areas	Tree Preservation Areas. Temporary Orange Construction Fence (TOCF) shall be installed in locations delineated on the plans in conformance with Section 120 of the SHA Standard Specification to protect existing trees and other vegetation during construction. Areas of SHA right of way within TOCF shall be protected from all prohibited and restricted activities, as specified in Section 120.
7.14	Roadside Tree Permit	<p>Roadside Tree Permit. Tree removal, tree installation, tree root and branch pruning, and other regulated impacts to trees in the SHA right of way shall conform to the requirements of the Roadside Tree Permit (RTP) of the Maryland Department of Natural Resources, or the Forest Conservation Act (FCA) approval of the local authority.</p> <ol style="list-style-type: none"> 1. A copy of the RTP or FCA Approval shall be submitted to the SHA Office of Environmental Design before work is performed, and a copy of the RTP or FCA Approval shall be reproduced in the plans or be in possession of the applicant at the project site when the permitted work is performed.

		2. A Maryland Licensed Tree Expert shall perform the specified tree operations in conformance with the SHA Standard Specifications and ANSI A300 Standards for Tree Care Operations.
7.15	Trees, Plant Materials Installation	Trees and Other Plant Material Installation. Trees, shrubs, perennials, annuals, bulbs, landscape beds and similar materials installed in the SHA right of way shall be installed in conformance with Section 710 and 711 of the SHA Standard Specifications. Tree and shrubs shall be pruned at the time of installation to ensure sidewalk clearance for pedestrians is maintained to a height of 8 feet.
7.16	Brush Removal	Brush Removal in the SHA right of way shall be performed in conformance with Operation 2 - Brush Removal with Stump Treatment of Section 713. Debris shall be removed, or chipped and distributed on SHA property to a maximum depth of 1 inch within brush removal areas, or in meadow or naturalized areas.
7.17	Tree Felling Turfgrass Areas	Tree Felling in Turfgrass Areas of the SHA right of way shall be performed in conformance with Operation 1 - Felling and Stump Removal of Section 714. All debris shall be removed from SHA property.
7.18	Tree Felling Meadow Areas	Tree Felling in Meadow Areas of the SHA right of way shall be performed in conformance with Operation 2 - Felling and Stump Treatment of Section 714. All debris shall be removed, or chipped and distributed within meadow areas of SHA property, to a maximum depth of 1 inch.
7.19	Tree Felling Natural Areas	Tree Felling in Natural Areas of the SHA right of way shall be performed in conformance with Operation 4 - Felling and Delimbing of Section 714.
7.20	Tree Branch Pruning	Trees Branch Pruning within the SHA right of way shall be performed in conformance with Section 712, and all debris shall be removed from SHA property as follows: <u>Applicant to explain goals of pruning, including height of clearance, etc.</u>
7.21	Tree Root Pruning	Tree Root Pruning in the SHA right of way shall be performed along the line shown on the plans in conformance with Section 715. Tree Root Pruning shall be completed before beginning excavation or other construction adjacent to trees to be preserved.
7.22	Tree Fertilizing	Tree Fertilizing in the SHA right of way shall be performed in conformance with Operation 1 - Broadcast Fertilizing per Section 716. 20-16-12 fertilizer shall be applied to the soil surface under the dripline of trees at the rate of 200 lbs. per acre.
7.23	Finished Materials	Finished Materials. The suitability, color and texture of <u>applicant to insert name of materials</u> to be installed in the SHA right of way shall be approved before installation. The contractor shall furnish samples or make arrangements for inspection and approval at the project site.
7.24	Future Maintenance	Future Maintenance. Additional maintenance that may be required after hardscape, street furniture or plant materials are installed and accepted by SHA such as replacement, watering, weeding, mulching or pest control may be provided by the applicant when a permit for the proposed work is issued by the SHA District Office.

Chapter 8 - Quality Assurance Checklist.

8.0 Access and District Permit Landscape Design Checklist. The following items are checked for sufficiency as part of the coordinated response of OED for an Access Permit or District Permit review:

Access & District Permit Landscape Design Checklist		
Chapter of Environmental Guide	Items to Confirm	Submittal is Acceptable
General		
	Point-by-Point Response is provided for OED Comments	<input type="checkbox"/>
	Revised Plans Conform with OED Comments and Point-by-Point Response	<input type="checkbox"/>
1.4	Project Conforms to SHA Landscape Design Philosophy.	<input type="checkbox"/>
Guidance Documents		
2.1	Project Conforms to SHA Standard Specifications, or Acceptable Alternatives.	<input type="checkbox"/>
2.2	Project Conforms to Principles of Landscape Design Guide.	<input type="checkbox"/>
2.3	Project Conforms to Preferred Plant List, Does Not Include Prohibited Plants.	<input type="checkbox"/>
2.4	Project Conforms to SHA Book of Standards - Category 700, Landscaping	
2.5	Project Conforms to Design Principles of Cost Estimating Manual.	<input type="checkbox"/>
2.7	Project Conforms to Applicable Guidelines for Scenic Byways.	<input type="checkbox"/>
2.8, 2.9	Project Conforms to Guidelines for Trails, Pedestrians, Bikes.	<input type="checkbox"/>
Environmental Permits		
4.1	Project Requires Roadside Tree Permit (RTP) or FCA Approval.	<input type="checkbox"/>
4.1	Project Mitigates Impacts to Roadside Trees and Other Vegetation.	<input type="checkbox"/>
4.2	Project Mitigates Impacts to Streams and Wetlands.	<input type="checkbox"/>
4.3	Project Mitigates Impacts to Chesapeake Bay Critical Area.	<input type="checkbox"/>
4.4	Project Mitigates Impacts or Provides New TMDL Facilities.	<input type="checkbox"/>
Special Landscape Concerns		
5.1	Project Mitigates Impacts to Trails and Scenic Byways.	<input type="checkbox"/>
5.2	Project Provides Acceptable Environmental Area Protection.	<input type="checkbox"/>
5.3, 5.4	Project Meets Standards for Tree Preservation & Pruning.	<input type="checkbox"/>
5.5	Project Meets Requirements for Offset Distance: Fixed Objects, Utilities, etc.	<input type="checkbox"/>
5.6	Project Meets Requirements for Site Restoration.	<input type="checkbox"/>
5.7	Project Will Not Require Additional Maintenance by SHA.	<input type="checkbox"/>
Landscape Plans		
6.0	Project Meets Standards for Preparation of Landscape Plans.	<input type="checkbox"/>
6.1	for Professional Seal, Accuracy and Clarity of Presentation.	<input type="checkbox"/>
6.2-a,b	for Right of Way Lines, Routes, Names, Posted Speed, etc.	<input type="checkbox"/>
6.2-a,b	for Overhead & Underground Utilities, Signs, etc.	<input type="checkbox"/>

6.2-c,d	for Existing & Proposed Trees, Groundcover, etc.	<input type="checkbox"/>
6.2-e	for Planting Schedule, Plant Keys and Labels, Master Plant List.	<input type="checkbox"/>
6.2-f	for Tree Felling, Brush Removal.	<input type="checkbox"/>
6.2-g	for Tree Branch Pruning, Tree Root Pruning, Tree Fertilizing.	<input type="checkbox"/>
SHA Landscape Notes		
7.0, 7.1	Project Includes all Required SHA Landscape Notes.	<input type="checkbox"/>
7.2	for Landscaping Specifications.	<input type="checkbox"/>
7.3	for E&S Manager.	<input type="checkbox"/>
7.4	for Standard Details for Trees, Shrubs, Planting Beds.	<input type="checkbox"/>
7.5	for Temporary Stabilization.	<input type="checkbox"/>
7.6, 7.7	for Roadway Pavement Removal, Excavation and Debris Removal.	<input type="checkbox"/>
7.8	for Soil Restoration and Bioretention Soil Mix (BSM).	<input type="checkbox"/>
7.9	for Turfgrass Sod Establishment.	<input type="checkbox"/>
7.10, 7.11	for Turfgrass Establishment and Soil Stabilization Matting.	<input type="checkbox"/>
7.12	for Meadow Establishment or Shrub Seeding Establishment.	<input type="checkbox"/>
7.13	for Tree Preservation Areas, Temporary Orange Construction Fence (TOCF).	<input type="checkbox"/>
7.14	for Roadside Tree Permit (RTP) or Forest Conservation Act Approval (FCA)	<input type="checkbox"/>
7.15	for Installation of Trees, Shrubs, Other Plant Materials.	<input type="checkbox"/>
7.16	for Brush Removal and Tree Felling.	<input type="checkbox"/>
7.17 - 7.19	for Tree Felling by Various Operations	<input type="checkbox"/>
7.20 - 7.22	for Tree Branch Pruning, Tree Root Pruning, Tree Fertilizing.	<input type="checkbox"/>
7.23	for Finished Materials.	<input type="checkbox"/>
7.24	for Future Maintenance.	<input type="checkbox"/>